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THESIS

DEFENSE TRAVEL SYSTEM: USING RESTRICTED AIRFARE IN CONJUNCTION WITH THE GSA CITY PAIR PROGRAM TO EFFECTIVELY REDUCE TDY TRAVEL COSTS WITHIN DOD

by

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September 2008

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This thesis discusses the Naval Postgraduate School's use of the Defense Travel System (DTS) and examines a process of using the GSA City Pair Program in conjunction with restricted airfare as a means to effectively reduce travel costs and conserve Department of Defense dollars. The thesis starts off with a brief introduction of travel at NPS, and is followed by a section on the Defense Travel System to include NPS's history with electronic travel systems. The third chapter highlights NPS's current travel process to include the Commercial Travel Office and GSA City Pair Program. Next I outline the process whereby NPS would use a combination of the City Pair Program and restricted airfare to reduce travel expenditures. Specifically, this section discusses obstacles to effectively using restricted fares and how to overcome those obstacles such as gaining approval from CNO's office (OPNAV N413B) to designate NPS as a test platform, using a decision matrix to help customers decide if a restricted fare is right for their trip, implementing the process with assistance from the DTS program office, reporting requirements and evaluation for determining if the process should be implemented for all of DoD. Finally, the thesis closes with a recap and some recommendations for improving DTS to increase stakeholder and customer satisfaction.

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DEFENSE TRAVEL SYSTEM: USE OF RESTRICTED AIRFARE IN CONJUNCTION WITH THE GSA CITY PAIR PROGRAM TO EFFECTIVELY REDUCE TDY TRAVEL COSTS WITHIN DOD

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ABSTRACT

This thesis discusses the Naval Postgraduate School's use of the Defense Travel System (DTS), and examines a process of using the GSA City Pair Program in conjunction with restricted airfare as a means to effectively reduce travel costs in order to conserve Department of Defense dollars. The thesis starts off with a brief introduction of travel at NPS, and is followed by a section on the Defense Travel System to include NPS's history with electronic travel systems. The third chapter highlights NPS's current travel process to include the Commercial Travel Office and GSA City Pair Program. The thesis then reviews the process in which NPS could use a combination of the City Pair Program and restricted airfare to reduce travel expenditures. Specifically, this section discusses obstacles to effectively using restricted fares and how to overcome these obstacles such as: gaining approval from CNO's office (OPNAV N431) to designate NPS as a test platform, using a decision matrix to help travelers decide if a restricted fare is right for their trip, implementing the process with assistance from the DTS program office, and reporting requirements and evaluation for determining if the process should be implemented for all of DoD. Finally, the thesis closes with a recap and some recommendations for improving DTS to increase stakeholder satisfaction.

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LIST OF ACRONYMS AND ABBREVIATIONS

- **AO** Authorizing Official
- **AUTH** Authorization
- **BOA** Bank of America
- **BOQ** Bachelor Officers' Quarters
- **CA** Certification Authority
- **CAC** Common Access Card
- **CBA** Centrally Billed Account
- **CBT** Computer Based Training
- **CDC** Central Data Center
- **CO** Certifying Official
- **COL** Certifying Officer Legislation
- **CONUS** Continental United States
- **COTS** Commercial Off the Shelf
- **CTO** Commercial Travel Office
- **DADS** Defense Accounting and Disbursing System
- **DBMS** Data Base Management System
- **DFAS** Defense Finance and Accounting Service
- **DISA** Defense Information System Agency
- **DMDC** Defense Manpower Data Center
- **DoD** Department of Defense
- **DoDD** Department of Defense Directive
- **DoDFMR** Department of Defense Financial Management Regulation
- **DTA** Defense Travel Administrator
- **DTS** Defense Travel System
- **EDI** Electronic Data Interchange
- **EFT** Electronic Funds Transfer

- **FASTDATA** Fund Administration and Standardized Document Automation
- **FDDI** Fiber Distributed Data Interface
- **FMR** Financial Management Regulation (Vol 5 Disbursements, Vol 9 Travel)
- **FTP** File Transfer Protocol
- **FTR** Federal Travel Regulation
- **GAO** General Accounting Office
- **GDS** Global Distribution System
- **GOVCC** Government Charge Card
- **GSA** General Services Administration
- **GUI** Graphical User Interface
- **HTML** Hypertext Markup Language
- **HTTP** Hypertext Transfer Protocol
- **IA** Information Assurance
- **IBA** Individually Billed Account
- **IBT** Internet-Based Training
- **IP** Internet Protocol
- **JFTR** Joint Federal Travel Regulations
- **JTR** Joint Travel Regulations
- **LAN** Local Area Network
- **LOA** Line of Accounting
- **M&IE** Meals and Incidental Expenses
- **NGMS** Northrop Grumman Mission Systems
- **NIPRNET** Non-secure Internet Protocol Routing Network
- **OCONUS** Outside Continental United States
- **ODTA** Organizational Defense Travel Administrator
- **OSD** Office of the Secretary of Defense
- **PIN** Personnel ID Number
- **PKI** Public Key Infrastructure

- **PMO-DTS** Program Management Office-Defense Travel System
- **PNR** Passenger Name Record
- **RO** Reviewing Official
- **SABRE** An electronic Global Distribution System (GDS), owned by Sabre Holdings.
- **SECDEF** Secretary of Defense
- **SMTP** Simple Mail Transfer Protocol
- **SPFA** Sponsored Program Fund Analyst
- **SSL** Secure Sockets Layer
- **SSN** Social Security Number
- **STARS** Standard Accounting and Reporting System (Navy)
- **TA** Travel Authorization
- **TCP/IP** Transport Control Protocol/Internet Protocol
- **TCSEC** Trusted Computer System Evaluation Criteria
- **TDY/TAD** Temporary Duty/Temporary Additional Duty (Navy/Marine Corps Term)
- **TMO** Traffic Management Office
- **TMS** Travel Management System
- **TR** Trip Request
- **VPN** Virtual Private Network
- **WAN** Wide Area Network
- **WBT** Web Based Training

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I. INTRODUCTION

A. TRAVEL IS ESSENTIAL TO NPS PRIMARY MISSION

NPS leads change through education and research, and produces tangible results that better equip our armed forces for the battlefield of today and tomorrow. To remain at the forefront of technological research, NPS Faculty and students study abroad with the best minds available. Professors, students, and faculty attend workshops, seminars, and conferences with peers from all over the world to learn the newest techniques and information. The technology developed at NPS has been used to shape the political arena, provide humanitarian assistance and give our military a distinct advantage in battle. It is through this collaboration that learning takes place and NPS translates this to Military Officers who are earning Postgraduate degrees. None of this would be possible without the ability to travel.

Because travel plays such an integral role in the learning process at NPS, it is critical to utilize travel resources as efficiently as possible. In 2005, the Naval Postgraduate School spent approximately 7 million dollars on travel, of that money 3.5 million dollars were spent on airfare alone [1]. NPS must determine ways to be more efficient with its resources adapting to today's environmental pressures of learning to do more with less. The challenge is succeeding in cost effective strategies without impacting its primary mission.

The Department of Defense is constantly applying new cost saving initiatives to its everyday processes and is forced to use resources more efficiently as it deals with

taxpayer scrutiny and congressional monetary cutbacks. The Naval Postgraduate School is no exception, as evidenced most recently in the Base Realignment and Closure (BRAC) 2005 session. NPS not only had to justify its location in Monterey, but its effectiveness as a productive institution worthy of continued existence. This intense scrutiny shows it is imperative that NPS must use its resources more efficiently than ever before. In an effort to align with this directive, this thesis examines a process of using the GSA City Pair Program in combination with promotional or restricted airfare to effectively cut travel expenses and make the travel system more efficient, which will ultimately save millions of DoD dollars annually. The intent of this paper is to provoke thoughts and ideas on better ways to streamline and make the travel system more efficient. The ideas presented henceforth are by no means the only "right" way to save money, but are one option as seen by someone who has used the system, observed its processes, and noticed opportunities for improvement.

B. RESEARCH QUESTIONS

The primary research question for this thesis is:

- Can NPS effectively utilize restricted airfare in conjunction with the GSA City Pair Program to effectively reduce transportation costs associated with thesis and research Travel?

Secondary research questions for this thesis are:

- Once NPS develops and uses a proven process for using excursion fares, can excursion fares be used effectively throughout DoD using DTS?
- In what ways can DTS be improved to help further reduce the transportation costs associated with DoD travel?

- How can DTS be modified to make the travel administration and travelers jobs more convenient?
- In what ways has the implementation of DTS already saved DoD money?

C. HISTORY OF TRAVEL SYSTEMS AT NPS

1. Manual Process of Travel

Prior to 1995, before the advent of electronic travel systems, the Navy's processes for travel were done manually. It was a very time consuming, expensive, and linear process. Travelers had to go to a travel clerk or admin office and tell them where they needed to travel. The traveler had to provide all of the specifics, including departure time, permanent duty station, arrival time, returning times, and payment information. After the orders were typed the paperwork would have to go through an approval process. The traveler would have to run around in person to gain the signatures required for approval of the orders. When travel was approved the Commercial Travel Office would then make the reservations and purchase the tickets. The tickets would normally be charged to a centrally billed account. When the traveler returned to their command, they would fill out the travel claim and submit receipts to the travel clerk, who would then forward to the PSD or Disbursing Office. A claim auditor from the disbursing office or PSD would perform all of the calculations or computations as to what the traveler was entitled to for reimbursement. Once the computations were performed, the travel claim was submitted electronically to Defense Finance and Accounting Service (DFAS) for payment. DFAS would then pay the traveler in the form of a U.S. Treasury Check, which could take up to an additional seven

days delivery. The traveler would then have to deposit the check into his or her bank account.

In the past, travelers were required to submit travel claims within five business days, because the voucher and reconcilement process sometimes took well over fifteen business days to complete. By the time the claim was paid, most bills incurred on travel were already due or past due with some incurring interest charges on the individual traveler's personal credit card. While this policy of submitting a travel voucher within five business days is still in effect today, the need for it is dwindling. Reconciling a travel claim was also expensive due to the manual labor requirements. The claims were filled out by hand and all calculations were performed manually by disbursing clerks. If errors were made, the traveler or DFAS would have to correct and resettle the claim. It was estimated that each document processed cost an average of $70.

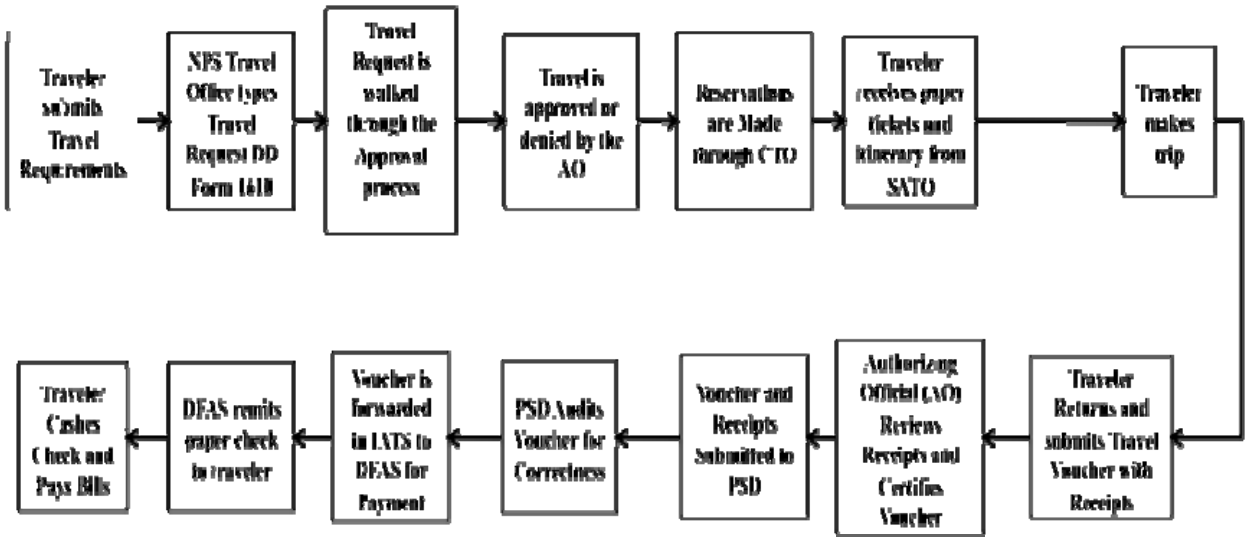

Figure 1. Manual Travel Process

2. Electronic Travel System

In 1995, the Naval Postgraduate School was designated to be one of the early pilot programs designated by the RTTF to evaluate an electronic travel system. The name of the software was Travel Manager. The developer was a company named Gelco, which was a subsidiary of TRW. The new electronic travel system took a while to get used to, but in the intellectual environment of NPS, it wasn't long before the program was running smoothly.

The Re-engineering Travel Transition office added a new appendix to the Joint Federal Travel Regulations and Joint Travel Regulations, specifically to give guidance to travelers conducting travel with the assistance of an electronic travel system. The new "Appendix O" gave clearer more succinct guidance on everything needed to travel. It also informed the traveler of a list of entitlements as well as a list of items that were prohibited on travel claims.

This new electronic Travel Manager System was revolutionary step for travel at NPS. For the first time, travelers had a system in which they personally created a travel authorization with a digital signature by using a user id and password. The new electronic travel system had distinct advantages over the manual process of traveling by hard copy orders (DD Form 1610). The new electronic travel system NPS used could reduce the time it took a traveler to gain authorization to travel by five times. Instead of taking a week to approve a travel authorization, the Travel Manager system could do it in less than a day. The electronic system alleviated the traveler from physically having to walk the travel authorization through his or her

Chain of Command. The electronic system also helped with record keeping. Now travel authorization and voucher records could be archived in a database and later recalled for auditing purposes or statistical analysis. Records could be sorted by location, trip type, purpose of travel, dollar values of travel, etc.

3. Electronic Travel Process Flow

The traveler would fill out an electronic travel request and electronically sign it using his or her id and password. The electronic travel system would then route the document through the traveler's chain of command. First, it was routed to the Commercial Travel Office (SATO in NPS's case) for reservations. The document was then routed through an account holder known as a Sponsored Program Financial Analyst (SPFA) for an estimated cost of travel. The SPFA's job was to manage the account for which travel was being charged to inside their department. The SPFA checked the account to see if there were enough funds available to cover the estimated cost of the trip. If monies were available, the SPFA digitally signed the document as being reviewed, and it was then routed to the traveler's Authorizing Official. The Authorizing Official, normally the traveler's Administrative supervisor, Department Chair, or Dean would determine if the travel was beneficial enough to the organization to charge the account, and if so then digitally stamped the document as approved by entering their user id and password. After the document was stamped approved, it was routed back to SATO for ticketing. SATO purchased the tickets using the traveler's personal credit card or official Government

Travel Charge card, three days prior to traveler departure. If the travel authorization was approved within the three-day window, then the tickets were purchased immediately. Once the tickets were purchased, the traveler was sent a confirmation and itinerary by email. Most tickets were electronic so that the travelers would just have to pick up their tickets, when they arrived at the airline check-in counter.

With Travel Manager, electronic reimbursement was also much quicker than the manual reimbursement process. Instead of taking up to 15 days to reconcile a travel voucher, it could now be done in less than 72 hours. After the traveler returned from TAD, they were to file a travel voucher within five days. The traveler would create a voucher from the authorization they had used to gain travel approval. The Voucher created would be populated with all of the pertinent information from the voucher. The traveler would review the voucher and make any necessary changes to coincide with the travel activities and digitally sign the voucher using their id and password. The document would then be routed to the traveler's SPFA for review and to Authorizing Official for approval. The traveler would physically deliver the receipts and supporting documents to their Authorizing Official for payment. The Authorizing Official reviewed the receipts and compared them to what was being claimed. When the authorizing official was satisfied with the validity of the travel claim, they electronically stamped it approved for payment. The authorizing official would return the receipts to the traveler for their records. The DoD Financial Management Regulations directed travelers to retain the receipts for

four years and three months for tax auditing purposes as required by the IRS. Once the Authorizing Official processed the travel claim, it was forwarded to DFAS for payment, and the appropriate NPS research account from the authorization was debited. While this new electronic system was not perfect, it offered great advantages compared to manual processing of orders.

II. THE DEFENSE TRAVEL SYSTEM

A. WHAT IS DTS?

The Defense Travel System, or DTS as it is more commonly known, is full service end to end travel system developed specifically for the Department of Defense (DoD) use. It is a web-based system that allows DoD military and civilian travelers to process their entire trip from initial trip planning to submitting a voucher for payment upon return.

B. HISTORY OF DTS

The idea for DTS was first conceived in 1995 after a Federal government reinvention initiative [2]. Through a National Performance Review in 1993, Vice President Gore, challenged members of the Federal government to devise ways in which they could operate more efficiently to save both time and money. The Department of Defense recognized that travel as one such area that could be greatly improved. The DOD determined better efficiency could be reached by designing a system requirement to meet the established and predicted needs of the DoD [2].

In 1995 the Department of Defense Travel Reengineering Study was established to develop a prototype travel system. The Defense Travel System Program Management Office (DTS PMO) was created. One of the first things DTS PMO did was to designate pilot site programs across the United States. A number of organizations were selected to evaluate various Commercial Off the Shelf (COTS) software programs to

determine if the COTS software would be able to accommodate the complexities of DoD travel. NPS was one of these 18 sites.

After determining that the pilot site COTS travel systems were not robust enough for Federal travel, DoD decided to develop their own system. Their task was to develop an “end to end” financial system specifically designed for DoD travel.

The travel system would function across all branches of military service and civilian DoD agencies. DoD wanted to implement this military travel system from a Joint perspective. The intent was to eliminate as many standalone or legacy travel systems as possible. Cutting down on legacy systems and maintenance and training costs would save millions of dollars annually and improve the DoD Travel Program’s efficiency. DTS would be a secure system that would promote information interchange by connecting financial institutions, commercial travel offices, global distribution systems, travelers, and travel administration.

C. DTS ARCHITECTURE

Medium and Protocol- DTS uses the World Wide Web in a client server based architecture to connect all stakeholders involved with Department of Defense travel. The main transport medium is Non-Secure Internet Protocol Routing Network (NIPRNET) Internet Protocol version 4 (IPv4) to transfer data between all clients [3].

Security- Information accuracy and authentication are achieved through the use of Public Key Infrastructure via the Defense Information Security Agency (DISA) located in

Denver, Colorado. The information is safeguarded through encryption, creating a virtual private network (VPN) and merits a C2 certification level of information security [3]. The Orange Book defines four categories of trust, each subdivided into classes within the categories. The lowest level of evaluated trust was called the C level, with the B level being higher, and the A level being highest. Within each category, numerical classes, starting from 1 as the lowest value, identified the increasing levels of requirements for trust. Category D is reserved for those products not successfully evaluated. Functionally, therefore, the lowest level of evaluated trust is C1. The next highest levels are C2, then B1, B2, B3, and finally A1. A successful A1 evaluation indicates compliance with extremely rigorous security engineering, development, and analysis requirements [4]. Along with this level of certification, every user of DTS is required to have a Common Access Card and Personal Identification Number (PIN) to access and perform functions in the system. The CAC and PIN combination uniquely identify an individual to provide several benefits. They can log in and arrange travel or file a travel voucher from anywhere in the world as long as they have access to an internet connection.

Central Data Repository- Two robust Oracle databases serve as a repository for all current travel records. The central data repository is what makes DTS such a valuable asset. The travelers' personal information, record of travel authorizations, vouchers, personal travel preferences, travel card information, travel receipts etc. are all stored in one location and are organized in such a way that it serves as meaningful and useful information for

administering the travel program. The purpose of having two central data repositories is system redundancy. The two data repository facilities ensure system availability and better protection of the valuable information from fire, flood, natural disaster, terrorist attack or anything else that might destroy or corrupt the data. The Two Data Centers warehouse all current travel records. Travel records are considered current if they are 15 months or newer. The Primary Data center is located in Fairfax, VA. The back up data center, located in Annapolis, MD, is meant to provide system reliability through redundancy [2].

Archival Center- Records older than 15 months are archived at the Defense Manpower and Data Center located in Monterey, CA. The purpose of the archival center is to provide a storage location for all non-current travel records. The archival center keeps the primary repositories from becoming too crowded enabling them to remain clutter free and provide the traveler with a faster more organized DTS. The Archival Database also provides a convenient location from which DFAS auditors can review older documents and conduct analysis on previous years travel trends. For example, NPS could find out what location is the most traveled to or how to gauge a more accurate travel budget by department.

Physical and logical architecture- Even though the essential physical components and agencies are geographically dispersed by hundreds and even thousands of miles, the virtual world of DTS network allows the traveler to have transparent access to all of them. Logically, the traveler’s voucher appears to be routed through the Internet just as it would be routed in the physical sense.

Each person in the traveler's chain of command will review and sign the document just as if the document were hand walked from one desk to another with the exception that this is done at a much faster rate with less physical movement.

The user links to the system through a graphic user interface which contains a series of modules. Authorization and Reservation Module- The authorization module is where the traveler builds his or her travel itinerary and schedules airfare, hotel, and rental car. The traveler also enters any other anticipated estimated expenses such as equipment transport, taxi fare, parking, or gas for rental car.

Voucher and Payment Module- In the travel voucher section of the itinerary, the traveler creates a voucher from an already existing travel authorization. This imports all pertinent information associated with the trip into the voucher module relieving the traveler from having to reenter redundant information. The traveler reviews the itinerary and can make necessary changes to reflect what actually occurred on the trip. Estimated figures from the authorization are substituted in the voucher with actual expenses incurred on the trip. Because DTS communicates with Bank of America, all of the traveler's Government Travel Card Charges that occurred during the dates of travel are automatically shown in the expense section of the voucher. After a voucher is filed and signed by the traveler with all supporting documentation, it is sent to the authorizing official for approval and is then forwarded to DFAS for payment.

CTOs and GDS- The traveler is connected to his or her chain of command and can create their own travel authorization document, make reservations and file a voucher all from the convenience of their desktop. Communicating with the different GDSs presents its own unique set of challenges. DTS must know the rules and regulations of each branch of service and interface with four different types of global distribution systems. The system network links the travelers to thirty Commercial Travel offices and their four respective Global Distribution Systems (Sabre, Apollo, Worldspan, and Amadeus).

Scalability- DTS's client server architecture allows it to be scalable. This means that it can grow with the addition of new users and still maintain an acceptable level of quality of service.

The following figure shows a graphical representation of DTS's physical and geographical architecture:

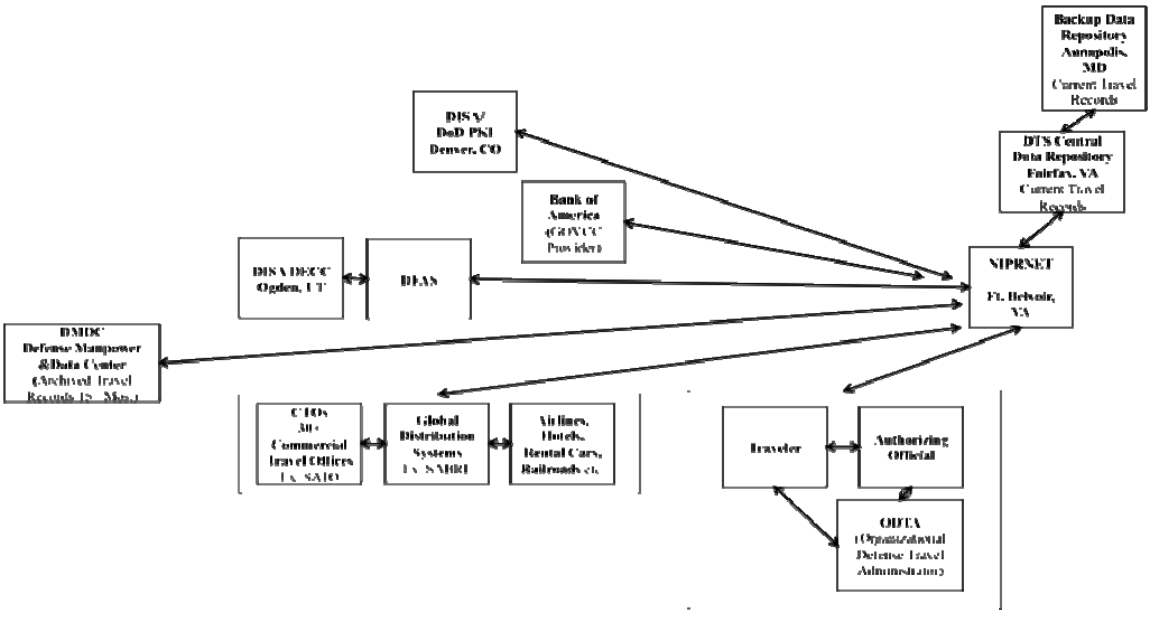

Figure 2. DTS Architecture (After [2])

D. OPERATIONS AND PROCESSES

The Naval Postgraduate School was notified in December of 2003 that it would be implementing the new Defense Travel System in March of 2004. The Program Management Office coordinated visits, and helped NPS map its travel business processes and procedures. NPS began a one month long phased implementation of DTS on March 26, 2004. Since DTS's introduction at NPS, the Travel Administration and traveler have learned a lot about the system and have suggested valuable improvements through the NPS/G2 Travel Helpdesk.

Travel Authorization Process- Traveler creates a travel authorization in DTS or submits a travel request to their Organizational Defense Travel Administrator (ODTA) to create an authorization in DTS. ODTAs are administrative assistants within Departments at NPS. Travel is a collateral duty for most of these people. Because they handle travel requests for their entire department, they get lots of practice and are well versed in the System. Most travelers choose to have ODTAs submit their travel claims because they travel infrequently and DTS can be a frustrating tool if you are not familiar with it. During creation of the authorization, the traveler inputs the purpose of the trip, the account to be charged, and then makes air, lodging and rental car reservations if needed. When making reservations, the traveler is actually interfacing directly with the Commercial Travel Offices' Global Distribution System (GDS) through DTS. When selecting airfare, the traveler is looking at live data of actual flights and can select the exact seat they want from the flight seat map. When selecting flights, DTS first

lists city pair flights if there are any. These flights will be highlighted in green. If there are city pairs available between the traveler's duty station and the TAD site, then the traveler must use the City pairs. If there are no city pairs available then the traveler picks from the most cost effective government contract fair that meets their mission requirements. After the traveler's authorization document is signed either by the traveler or ODTA, it is forwarded to SATO for a Quality Check to make sure all the reservations are booked according Navy policy and procedure. The document is also forwarded to the SPFA or Sponsored Program Financial Analyst to stamp review. When a SPFA reviews a document they are looking to see that there are enough funds in the account to cover the estimated cost of travel to include transportation, per diem (combined rate of lodging, meals and incidental expenses), and any other miscellaneous expenses. Once the document is stamped reviewed by the SPFA it is forwarded to the traveler's Authorizing Official for Approval. The authorizing official is usually the traveler's immediate supervisor. In most cases this is a Department Chairman or Academic Dean. After the document is approved it is ready to be ticketed. Tickets are issued three days prior to the traveler's scheduled departure. The traveler goes on travel, conducts business and returns to their permanent duty station.

Travel Voucher and Payment Process- Once the traveler returns they have 5 business days to create and submit a travel voucher in DTS. If the traveler created his or her own authorization, they will likely fill out their own voucher. A traveler creates a voucher by selecting the

option “create a voucher from an existing authorization.” This relieves the traveler or ODTA from entering redundant information and further streamlines the travel process. The pertinent information from the existing authorization is transferred into the voucher. The traveler reviews the information imported into the document from the authorization checks it for accuracy and makes any adjustments in the voucher that deviate from what occurred on the trip. He or she will also electronically store their receipts into the document to be archived as supporting documentation with the travel voucher by scanning the receipts directly into the document using a document scanner or fax machine. When the traveler elects to fax the receipts into the voucher, DTS will generate a cover page with a barcode that links the receipts to their travel voucher record. Travelers must include all receipts for items costing $75 dollars or more. Lodging receipts and airfare e-ticket receipts (e-invoices in case of hard copy tickets) are to be included regardless of the dollar amount. These collective documents will be stored in DTS for auditing purposes for a period of six years and three months in accordance with DoD Financial management regulations to comply with Internal Revenue Service requirements. In addition, any purchases made with the traveler’s Government Travel Charge Card during the dates of travel will automatically appear in the voucher. This smart link with Bank of America’s database will allow the traveler to notify DFAS to electronically split disburse payment to the card when the traveler is reimbursed for travel. This relieves the traveler of having to mail a check or pay the charge card balance by phone. Once the traveler’s voucher accurately reflects what happened on the

trip and matches all receipts, the traveler will digitally sign the voucher by using his or her Common Access Card (CAC) and personal identification number (PIN). The traveler and only the traveler is allowed to digitally sign the voucher as they are certifying that the claim is true and correct to the best of their knowledge. Anyone else signing the document is the equivalent of forgery. ODTAs are allowed to enter and sign an authorization for the traveler, and they are allowed even to create a voucher in DTS, but it is the traveler who must review the claim for correctness and digitally sign the document using their own user id, Common Access Card and PIN. After the traveler signs the voucher, it is routed to the funds reviewer (SPFA) to make sure there is enough money in the account once again. The reviewer digitally stamps the document reviewed and it is passed to the Authorizing Official's queue. The authorizing official will audit the voucher and reconcile with attached receipts and then digitally certify authorization for the document to be paid. Finally, the document is routed to DFAS and will be paid within 36 to 72 hours.

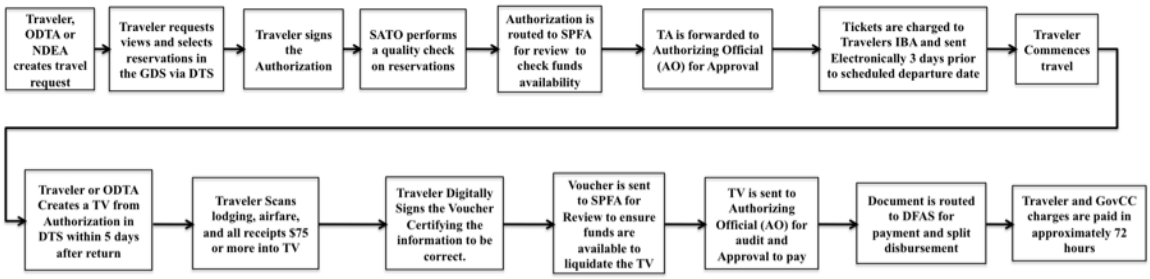

Figure 3. DTS Travel Authorization and Voucher procedure

E. STRENGTHS OF DTS

DTS is an important step in the evolution towards a Joint travel system. It is the first program to effectively get all Department of Defense agencies and personnel using the same software program for travel and has eliminated numerous antiquated legacy systems as well as the maintenance costs associated with those systems. It gives travelers more control over their own travel and bypasses the middleman; Commercial Travel Offices. Previously, travelers needed a SABRE expert, but with DTS the traveler is able to interface with the GDS through a graphic user interface. The complex and archaic codes used by the actual GDS are now transparent to the traveler. This means that SATO, NPS's CTO, role has changed somewhat from travel arranger to quality control. DTS also provides a database repository in which to analyze valuable travel information that was previously unavailable. DFAS, DTS Program Management Office, GSA, are able to use these metrics to tailor budgetary requirements and negotiate City Pair contracts based on the most frequently traveled routes between the travelers' origin and destination cities. It provides an easily recoverable audit trail for DFAS to monitor an Agency's DTS administration actions to ensure that travel policies and procedures are being followed. The system also means faster reimbursement for the traveler as opposed to hard copy travel orders or non- networked electronic travel systems. The DTS budget module is capable of holding each agency's lines of accounting and directly interfaces with DFAS to deposit payment via electronic funds transfer to the traveler's bank account. This allows the traveler to be paid within 72 hrs of their voucher being approved. An additional convenience to the

traveler is that once their Traveler Profile is created in DTS, it remains there through out their military or DoD career. When a traveler moves from one command to another, only a minor amount of information must be updated such as the member's new mailing address, new activity UIC, and new contact information. DTS also has the ability to scan or fax receipts and link them with the corresponding travel document. Previously the burden was on the traveler to maintain all receipts over $75. With this new capability, the traveler and AO are provided with the tools to readily comply with the IRS requirement saving both space and paper while making it easier on auditors to access the receipts they need.

F. CRITICISM OF DTS

DTS has allowed NPS to make phenomenal strides in the way it conducts the business travel, but the system is not with out its share of problems. Travelers at NPS have voiced complaints that merit discussion. At the time of its implementation at NPS, DTS was met with resistance and in some cases outright hostility.

Initially, the Travel office received many complaints from Faculty and Staff. The majority of complaints were usual frustrations that are common to any organization adjusting to a new system or process. The user has to learn the capabilities and become familiar with the system. Along the way, NPS faculty, staff, and students have adjusted to DTS. After a few months the complaints received by the travel office diminished, and the ones that were received had more merit. These complaints actually made the system better for the DoD and for the DTS Program Management Office.

1. DTS is Not Intuitive Enough to the Infrequent User

DTS is meant for use by the average traveler, but the system's complexity and constantly changing DoD travel policies make this difficult. The system is a very useful tool, but only in the hands of an intermediate or experienced traveler. Without proper training for the new user, DTS can be frustrating and complicated.

To minimize frustration of the travelers and their chain of command, travel experts are needed to maintain the system. The Naval Postgraduate School uses these Organizational Defense Travel Administrators (ODTAs) and the contractor G2 to administer DTS. G2 has two people located on site in the NPS travel office and two additional people who staff a remote helpdesk located in San Diego, CA.

2. System Architecture Doesn't Always Support Travel Policy

DTS will sometimes book restricted fares contrary to travel policy.

a. Example: DTS Allowed an ODTA to Select a Non- Refundable Airfare

An Air Force Captain took a trip to Washington D.C. from Monterey, CA for thesis research and unknowingly purchased a restricted non-refundable ticket. One of the travel clerks or ODTAs in the NPS travel office entered the authorization and made the reservations. The ODTA had no idea the ticket was a restricted fare when she booked it because DTS is not supposed to offer restricted airfare in the first place as Navy policy forbids the use of them. SATO sent the traveler his itinerary. After reviewing his itinerary the traveler realized that his flights were booked

incorrectly. The traveler's reservations had him flying to two TAD locations. He wanted to fly to Washington D.C., drive to the second TAD point in a commercial auto, and fly home from the second TAD point. Upon catching the mistake, the traveler notified the NPS travel office, which cancelled the return trip from Washington DC in DTS and scheduled another leg originating from the second TAD point for the return trip. Upon his return, the traveler discovered that he had still been charged for all three tickets. The Travel Office and SATO later discovered, after trying to recoup the refund, that the first ticket had been a restricted fare and was non-refundable. The travel clerk had cancelled the non-refundable flight and inadvertently incurred the cancellation charge. All three tickets were billed to the traveler's credit card. The NPS travel office had a difficult time deciding who should pay for the $500 error. The Travel Clerk was not to blame because all tickets listed in DTS should have been unrestricted and fully refundable. The traveler was not to blame because he had submitted his itinerary in accordance with all policy requirements. As a matter of principle, the departmental travel account holder did not want to spend his research money for a mistake that was not his or the traveler's. The commercial travel office, SATO, claimed that it was not at fault because DTS had auto booked the ticket. DTS allowed the ODTA to unknowingly book a non-refundable ticket for the traveler. Ultimately, the traveler's Department paid the price of the unused ticket from their research fund. This case is an exception rather than the norm, but it was still a waste of government research funds due to a Defense Travel System flaw.

3. DTS Does Not Present the Lowest Fares

DTS has met scrutiny when it comes to searching for airfare. Some media articles have questioned if DTS really presents the cheapest airfares to travelers. DTS uses the same search engine that SATO does. SABRE is the Global Distribution System (GDS) that they both use to book airfare, commercial autos, rail transportation, and lodging.

Because Monterey has only a handful of City Pairs, another recurring question commonly encountered is, "Why aren't travelers allowed to use excursion fares or restricted fares when they were extremely lower than city pair or regular unrestricted government fare?" The argument is that travelers should be good stewards of government travel dollars and if travelers are not using low priced excursion fares when available, then they are not being good stewards of government resources.

a. Example: International Excursion Fare Priced 50% Below Standard Commercial Fares

Three professors from NPS's Mechanical Engineering Department were traveling to Taiwan on TAD and were concerned about saving reimbursable research travel money. Government Contract cost of Transportation was $5,000 for a round trip ticket, but they had also found an excursion fare available to the general public on Expedia for a cost of $2,500. With a possible 50 percent savings, these professors asked if there was anyway that they could use the reduced fare, as they would be making four additional trips. The NPS Travel Office contacted Ms. Cheryl Stevens at the CNO's office in Washington D.C. to investigate whether or not the professors would be allowed to use the promotional airfare. Ms. Stevens stated that

current policy prohibited Navy personnel from booking excursion fares because of associated penalties and restrictions.

III. CURRENT TRAVEL COST SAVING INITIATIVES, AND THE POTENTIAL FOR IMPROVING THEM

A. DTS AS A COST SAVER

The Defense Travel System itself is a cost saver. DTS networks all DoD components and their travel programs. The networked system allows for easier management and oversight of all DTS travel programs from a central location. It also reduces the technical complexity of managing a multitude of various travel systems by alleviating the need for legacy systems that were previously used as electronic travel system test sites. As these legacy systems disappear, so do the maintenance and administrative costs associated with them. DTS also reduces the number of people required to administer the travel system. The Department of Defense no longer has to pay numerous contractors to maintain these various standalone systems and is able to reduce number of Travel Program Auditors because there is less of a need for experts who are well versed in the nuances of various legacy travel systems. DTS also eliminates the need for routing of hardcopy paperwork eliminating wasted time in routing the unnecessary paper. Since important travel documents can be stored in electronic format along with all supporting documentation, there is no need for the associated costs of storing paper records. Another benefit enjoyed by having a paper free travel system is that it frees office space of clutter making the traveler or manager more effective at performing other tasks.

1. Eliminates Legacy Travel Systems and Associated Maintenance Costs

As stated earlier, one of the benefits of DTS was to eliminate other legacy or stand alone travel systems as well as the costs required to maintain them. All of the off the shelf programs that were used in pilot sites can now be eliminated and all DoD will have a networked travel system. Carrier and fuel costs associated with routing paper work between offices are also eliminated.

2. Reduces People Needed to Administer the Travel System

DTS reduces the number of people required to administer the Travel system by cutting out the middleman. It puts the traveler in control and reduces the time that it takes to process travel by doing away with physical movement of paper documents.

3. Reduces Surcharges Previously Associated with Slow Reimbursement

As illustrated in chapter two, the time that it took to reimburse the traveler through the manual travel process was substantial. In some instances reimbursement for a claim could take more than a month to complete. During that excessive processing time many surcharges would have to be paid to vendors or travel cards. With DTS, traveler can be paid in less than three days abolishing interest charges associated with slow or delinquent payment.

B. COMMERCIAL TRAVEL OFFICES

Before DTS, Commercial Travel Offices (CTOs) were DoD’s way of administering travel programs in the most cost

effective manner. While individual components were responsible for managing their own travel programs, the CTOs were used as a travel agent to book the lowest fares to meet the travelers' requirements. They were responsible for booking travel reservations in accordance with DoD travel policy and still ensure that airlines are refunding all unused traveler tickets.

1. CTOs Look for the Lowest Fares Directly in the GDS

When a traveler wishes to travel to a location that is not a City Pair with Monterey, San Jose, or San Francisco, this does not mean that the traveler doesn't get to enjoy the economic benefit of using a City Pair. Many of the travel agents in the CTO have previously worked in the travel industry for other travel agencies or for the airlines. They are very familiar with the Global Distributions systems and can easily query the GDS to find combinations of City Pairs that DTS might not recognize. While DTS can recognize which legs are City Pairs, CTO travel agents can use common logic to suggest combinations of city pairs to meet a traveler's requirements [5]. DTS does not yet have the ability to suggest these combinations of City Pairs. It still takes the expertise and creativity of a human to find alternative cost saving travel routes.

2. CTOs Monitor Unused Tickets and Reclaim Money

The CTO agents are also responsible for identifying unused airline tickets or portions of unused airline tickets and reclaiming the credit or refund for them. The CTO agents do this by querying traveler records also known as Passenger Name Records (PNRs) for codes known as "ticket

lifts.” Each traveler will have a PNR and any traveler flying will have a ticket confirmation number. Once the traveler has flown, a ticket lift is automatically inserted into the PNR to signify that the airline ticket has been traveled on. To find unused tickets, the travel agents run a query against all tickets for the prospective dates of travel and identifies the tickets with no “tickets lifts” this list is then submitted to the airlines and the money is reclaimed for the government [5].

3. CTO Management Helps Reduce Fraud, Waste, and Abuse

CTOs also help prevent fraud waste and abuse by monitoring the travel transactions to see if travelers are requesting seats of the right travel class. They ensure that no First Class Seats are booked at government cost, as First Class travel is no longer authorized. Business Class can be booked for the traveler’s comfort, but is only authorized when a traveler’s mission requires them to travel overnight or on flights longer than 14 hours in duration [6].

The CTO also monitors traveler itineraries to ensure that no unnecessary additional flights are added to the traveler’s itinerary for personal purposes such as vacation.

In addition CTO watches for travelers who only use certain airlines or hotels, regardless of how much more expensive they are compared to other suitable airlines or hotels, because they get personal rewards. SATO has observed instances where certain travelers want to fly nothing but United Airlines and will intentionally route

their travel where no contract city pair flights just so they can fly on United Airlines to gain frequent flier miles [5]. Unfortunately, this behavior undermines the intent of the City pair program and is ethically questionable as it provides the traveler with materialistic gains at government expense.

Sometimes travelers will book airfare outside of the Commercial Travel Office to look for excursion airfare because they wish to save research dollars by getting cheaper airfare. While their intentions may be honorable, this practice still undermines the GSA City Pair Program and cuts the Commercial Travel Office out of the travel process.

C. GSA CITY PAIR PROGRAM

The General Services Administration (GSA) City Pair Program is another government program that saves travel dollars by providing lower priced more economical airfare to federal service employees. The airfare rates for the city pair program are negotiated prior to the beginning of each fiscal year. The GSA bids for contracts with commercial air carriers for one-year contracts on the most frequently traveled routes between pairs of cities. To be considered for negotiation as a city pair, government employees must make 120 or more flights between the cities annually [7].

Most of the City Pairs are priced 70% below what the general public will pay for the same flights [7]. The government is able to purchase these airline tickets at such a large discount based on the premise that they will be purchased in bulk consumption over the one-year

contract. The City Pair contract stipulates that the government will use only that airline for that city pair regardless of special promotions offered by other airlines to the general public. Because the City Pair contract rates do not fluctuate for the entire year, it is easier for DoD components to estimate or plan their air travel budgets and the airlines in exchange, keep seats full on flights and are able to project revenue based on estimates of DoD passengers traveling with them as the preferred carrier.

1. Types of City Pairs

There are two types of contracts for each city pair. There is a YCA fare and an XCA fare (or _CA) fare. The CA in these fares stands for contract awarded. The Y stands for unrestricted meaning there are no capacity restrictions, the ticket is fully refundable, there is no limit on changes, and the ticket can be purchased at any time. The XCA or _CA, where X or _ stand for any letter of the alphabet other than Y, designate the flight as capacity controlled. These flights carry all the same benefits of the YCA flights with the exception of having limited available seating. The XCA flights are extremely discounted fares and are even cheaper than the YCA flights. The only drawback to the XCA/_CA fares is that they fill up fast due to the limited seating available [7]. Therefore, it is required that the passenger reserves these flights well ahead of the scheduled travel date. It is difficult for other airlines to offer non-contract fares cheaper than this. Both YCA and XCA fares offer great advantage to the government. There are no blackout dates, the tickets are fully refundable, and the rates stay fixed for an entire year. Currently there are more than 6,000 domestic or

continental city pairs and over 600 international city pairs available for use by federal government employees with more additions each year [7].

Using City Pairs. The CPP like any other program will flourish with usage. Unfortunately, the opposite is also true. Failure to use the City Pair Program will result in its demise, this is why the government mandates the program's use by the federal traveler whenever possible. As more people use the program, the more city pairs will be offered, and the more attractive the program will be to the airlines. The more attractive the program is to the airlines, the more leverage the government has to negotiate lower prices. Hence it is to everyone's advantage to use the program whenever possible. In contrast, there are some instances when city pairs may not be the most economical or feasible flights to take. In such instances, the traveler may be authorized to use other government rate airfare than the city pair program.

2. Exceptions to Using City Pairs

There are four exceptions to mandatory use of contract carriers that must be granted by the Navy Passenger Transportation Officers (NAVPTOs) if applicable:

* Space on the scheduled flight is not available to accomplish the purpose of travel or use of contract service would require unnecessary overnight lodging costs thus increasing the total trip cost.

* Flight schedule is inconsistent with agency policy regarding travel during working hours. DoD POLICY - 2400 to 0600 for non-emergency requirements.

* Non-contract carrier offers a lower fare that is available to the general public.

* Rail service is available which is cost effective and meets mission requirements. [7]

Because the City Pair Program is so cost effective, the DoD mandates its use by DoD travelers unless one of the aforementioned conditions applies.

3. When City Pairs are Not Available

As mentioned, City Pairs are currently the most economical means of air travel offered in the government travel system, but what happens when a City Pair is not available. Current policy outlines that if no City Pairs are available, there is no other option than using standard commercial rate airfares. If a member travels from a location where city pairs are not very numerous, a case like NPS's, an organization's travel costs can quickly skyrocket. There are two possibilities to remedy this situation. The first and most attractive option with the least risk would be to expand the number of city pairs offered, and the second option would be to look for alternative fares that are not as expensive as the standard rate commercial airfare.

Gaining more City Pairs offered for a location or duty station would increase travel savings. In order to get more city pairs, DoD or NPS would need to track the cities to which NPS students and faculty are traveling. These metrics could be gathered from historical data stored in DTS and used to consolidate the number of flights taken annually from the local Monterey DoD components such as NPS, DLI, DMDC, and FNMOC. For a location to be considered

for City Pair, the origin and destination pair must be frequented at least 120 times annually [7]. With all of the DoD components local to the Monterey and San Francisco area, this would greatly increase the chance of getting more city pairs offered. DTS is a powerful tool for tracking this data. The data can be collected from DTS database for each of the Unit Identification Codes and city pairs can be recommended for GSA contract, so NPS and the other DoD activities can begin saving more money by reducing its travel expenses freeing travel budget dollars for use elsewhere. There is a problem of having to wait until the next fiscal year before the City Pair Program Contracts are renegotiated and the new city pairs are accepted to start enjoying the benefits of these more economical airfares. So, what could be done in the interim to save money? Travelers could search for the next most inexpensive airfare available. One suggestion would be the responsible use of restricted airfare also known as excursion airfares.

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IV. USE OF RESTRICTED AIRFARE AS A COST SAVING PROGRAM

A. OVERVIEW

Restricted Airfares are flights offered by airlines to the General Public at extremely low rates but they carry some time specific limitations. In many cases, the most severe limitation is that the airfare is non-refundable, but if used in a proper manner, the Naval Postgraduate School and other Monterey DoD activities would be able to benefit greatly from these lower priced airfares. First of all, the Monterey area does not have many city pairs available according to the GSA City Pair website. The 2006 GSA City pair contracts show that there were only 23 city pairs involving flights to and from Monterey [8]. An excursion fare on the other hand can be priced even lower than the XCA limited seating capacity contract city pair fare. The problem with excursion fares is that they generally carry restrictions. The challenge to using these airfares effectively is developing a reliable process that will minimize the risks generally associated with excursion tickets allowing the government to benefit financially from the extremely low fares.

City Pairs Originating from Monterey for FY 2006

	Award Year	Origin Airport	Destination Airport	Origin City	Origin State	Origin Country	Destination City	Destination State	Destination Country	YCA Fare	XCA Fare	Business Fare
1	2006	MRY	ORD	MONTEREY	CA	USA	CHICAGO	IL	USA	$194		
2	2006	MRY	SFO	MONTEREY	CA	USA	SAN FRANCISCO	CA	USA	$235	$214	
3	2006	MRY	PHX	MONTEREY	CA	USA	PHOENIX/SCOTTSDALE	AZ	USA	$335	$238	
4	2006	MRY	SAN	MONTEREY	CA	USA	SAN DIEGO	CA	USA	$136	$130	
5	2006	MRY	SAT	MONTEREY	CA	USA	SAN ANTONIO	TX	USA	$295	$180	
6	2006	MRY	PDX	MONTEREY	CA	USA	PORTLAND	OR	USA	$353		
7	2006	MRY	SEA	MONTEREY	CA	USA	SEATTLE-TACOMA	WA	USA	$243		
8	2006	MRY	SLC	MONTEREY	CA	USA	SALT LAKE CITY	UT	USA	$243		
9	2006	MRY	TUS	MONTEREY	CA	USA	TUCSON	AZ	USA	$218		
10	2006	MRY	TYO	MONTEREY	CA	USA	TOKYO		JAPAN	$275	$220	$2,449

City Pairs Traveling to Monterey for FY 2006

	Award Year	Origin Airport	Destination Airport	Origin City	Origin State	Origin Country	Destination City	Destination State	Destination Country	YCA Fare	XCA Fare	Business Fare
1	2006	ABQ	MRY	ALBUQUERQUE	NM	USA	MONTEREY	CA	USA	$390		
2	2006	ATL	MRY	ATLANTA	GA	USA	MONTEREY	CA	USA	$401		
3	2006	BOS	MRY	BOSTON	MA	USA	MONTEREY	CA	USA	$703		
4	2006	CAE	MRY	COLUMBIA	SC	USA	MONTEREY	CA	USA	$300		
5	2006	COS	MRY	COLORADO SPRINGS	CO	USA	MONTEREY	CA	USA	$375		
6	2006	DCA	MRY	WASHINGTON	DC	USA	MONTEREY	CA	USA	$405		
7	2006	DEN	MRY	DENVER	CO	USA	MONTEREY	CA	USA	$245		
8	2006	ELP	MRY	EL PASO	TX	USA	MONTEREY	CA	USA	$300		
9	2006	EWR	MRY	NEWARK	NJ	USA	MONTEREY	CA	USA	$449		
10	2006	HNL	MRY	HONOLULU	HI	USA	MONTEREY	CA	USA	$539		
11	2006	IAD	MRY	WASHINGTON	DC	USA	MONTEREY	CA	USA	$406		
12	2006	LAX	MRY	LOS ANGELES	CA	USA	MONTEREY	CA	USA	$89	$81	
13	2006	MCI	MRY	KANSAS CITY	MO	USA	MONTEREY	CA	USA	$405		

Table 1. GSA City Pairs for Monterey FY06 (After [8])

B. OBSTACLES TO USING RESTRICTED AIRFARE

In March 2004 the Government Accounting Office (GAO) conducted an audit on unused airline tickets and identified millions of dollars of unused airfare that had never been recouped from airlines. The auditors researched four Fiscal years of financial records and travel data. In the scope of the investigation, various airlines and commercial travel offices were interviewed, and Bank of America Government Travel Card accounts were examined. The GAO focused on all military branches of Service and non-Military agencies within DoD. The results of the report cast Airlines and Commercial Travel Offices (CTOs) in an unfavorable light. The report showed that 21 million dollars a year were wasted on unclaimed refunds from unused airline tickets [9]. Commercial Travel Offices and travelers were not recouping the money on unused airline tickets. Also mentioned in the report was the fact that airlines did not volunteer to credit the DoD with the money it was owed. Without the proper controls in place, it was impossible to monitor and correct this problem.

Shortly after the GAO audit was finalized in April of 2004, a Naval Message from the CNO's office was released as a NAVADMIN. The message, titled *Unused Commercial Travel Tickets*, was intended to establish policy and guidance for recouping unused commercial tickets [10]. It also reminded Navy travelers that they were responsible for being good stewards of DoD resources/money. Paragraph 5 subparagraph A of the message stated:

> All travelers must use the GSA contracted air carriers when making their official travel arrangements, unless city-pair fares are not available or use of them will adversely impact the mission. **Restricted fares that cannot be fully reimbursed if the trip is cancelled or changed are not authorized**. [10]

The last line of the NAVADMIN quote is puzzling because the GAO audit focused on unused tickets, not restricted fares. The GAO did not collect data on excursion or restricted non-refundable fares or how much of the unused tickets were restricted fares. The policy change was a reaction to limit all possible avenues in which money could be lost on air travel. When the audit was conducted and message was written, there were no control measures or data collection methods as available options other than completely banning the use of non-fully refundable tickets. Had such reporting control measures been in place, and available to executive management, the Navy might have still been able to gain the benefits of using the extremely low rates of restricted airfare. With the proper IT infrastructure/architecture, NPS can place controls and monitor them to implement a successful program for using restricted airfare that would benefit all interested parties.

C. OVERCOMING OBSTACLES TO USING RESTRICTED AIRFARE

In developing a program to effectively and efficiently use excursion fares, we must first review the obstacles associated with them. First, excursion fares are currently banned by the CNO. Second, a reliable process must be developed, validated, and implemented to effectively utilize restricted airfare.

1. Gaining CNO Approval to be a Test Platform

In order to develop a program for using excursion fares, the CNO must first designate NPS as a test pilot program. NPS is accustomed to developing new processes and technologies making it the perfect place to develop a test

program to utilize excursion fares. The school is small, but does lots of thesis travel. Because NPS is a joint military environment, the program would get major publicity. Military officers at the postgraduate school representing various branches of service would be excellent resources to give their unique perspective on developing the process. This would improve the chances for these other services to adopt and successfully use restricted airfare.

To assist with getting NPS pilot site approval from the CNO's office to use excursion fares, the DTS Program Management Office in Washington, D.C. has volunteered to sponsor NPS as a test program to use excursion fares. The DTS Program office is very interested in this topic and has offered to help NPS develop the process. DTS/PMO is particularly interested in using excursion fares for DoD activities. They have also expressed interest in developing a decision matrix to help travelers decide whether or not the benefits of using an excursion airfare for a trip would outweigh the risks involved [11].

2. Developing a Process for Using Restricted Airfares

As previously mentioned the most feasible time to use excursion fares are when there are no city pairs available and expensive full priced commercial flights are the only alternative.

Step one: develop and implement a process for using restricted airfare and include all key players such as SATO, CNO's office, etc. The DTS Program Management

Office’s SEA division is responsible for all interfaces between DTS and the Global distribution system [11].

Step two: Monitor the program and evaluate collected data to see if the program is a success. Observe long term trends to determine what effect restricted fare use will have on the City Pair Program. Data points in the reports should illustrate how many restricted fares were used, how many were cancelled or changed, and how much money was saved or lost.

Step three: Report findings to CNO’s Office. SEA of the DTS Program Management Office can assist with developing the reports. Two major reports should be used to gauge the success of the program. The first report would show how much savings were generated by highlighting the original commercial fare amount, and how much savings were obtained from using the excursion fares. The other report would outline the number of cancelled flights or changed flights and money lost to these instances. The data collected could be used to compare how much money was saved or lost over all. This data would provide senior leadership with information they need to decide if the program should be fully implemented or cancelled.

Step four: Program Evaluation. The criteria for evaluating the program are simple. If the program has saved more money than it lost by using excursion fares, then the program is successful. Conversely, the program would be considered unsuccessful if more money was lost by using excursion fares than DoD would have spent using standard commercial airfare.

If Secretary of Defense determines this pilot program to be successful, it can be implemented DoD-wide, and all Branches of Military service can enjoy the benefit of lower travel costs.

3. Process Specifics

a. International Travel is the Best Area to Start this Program

The greatest area for potential savings on this program is with international flights. Naval Postgraduate School personnel frequently travel outside continental United States to attend conferences, symposiums, and lectures. The number of city pairs is greatly reduced for trips over seas. This leaves non-contract unrestricted fares that can quickly become high dollar items. Airlines often offer great last minute excursion fares on less traveled routes to international destinations in order to fill seats. A ticket sold for a greatly reduced rate is better than a ticket not sold at all. Typically restricted airfare for OCONUS flights can be priced up to 50% below their unrestricted counterparts. The difference between restricted and unrestricted airfare for Domestic flights is not as dramatic as it is for international flights, but the chance to capitalize on savings still exists. If the program is successful for international restricted fares, then it can be adapted to include restricted airfare for domestic flights.

b. Identifying Restricted Fares in the System

Restricted flights should be listed in DTS and should be as distinguishable as City Pair fares. As city pairs are highlighted in green, excursion fares should be highlighted in red to identify them as a special fare. The

red color would alert the traveler that the flight they have selected is a restricted ticket and prompt them to look at restrictions associated with the airfare before purchasing it.

c. Decision Matrix for Using Restricted Fares (Risk Mitigation)

With each restricted fare identified, the traveler would click on a particular restricted flight and the list would “pop up” outlining restrictions associated with the flight. In addition, there would be a questionnaire or decision matrix presented to the traveler. Because the traveler is logged in, his or her information will be included in the form for the automated decision matrix. This form/decision matrix tool would help supply the traveler with a cost benefit/risk analysis to determine if the traveler should reserve and purchase the ticket.

Usually, there are penalties associated with change or cancellation of a restricted flight. Most airlines will charge a one hundred dollar penalty fee for each change associated with a restricted ticket. If the traveler fails to make changes to a ticket and does not travel on the original scheduled trip departure the result is a cancellation of the ticket. With cancellations, some airlines will refund a credit that expires in one year to be used on later flights. Other Airlines stipulate that cancellations will result in forfeiture of the entire amount of the ticket. The decision matrix will assist the traveler in making the right choice of whether or not to purchase the ticket.

Possible decision matrix questions would include but are not limited to:

- What’s the lowest price of unrestricted airfare available that meets mission requirements?

- What is the reason for travel? Is the traveler attending a conference that is not likely to change? Is the traveler meeting with a person whose schedule is likely to be changed?

- On a scale from one to ten how likely is the traveler to change their reservations or cancel their trip? (One would be a low likelihood and ten would be the greatest.)

If the difference of the dollar amount (potential savings) between the restricted and unrestricted fare were below a certain threshold, then the decision matrix would suggest the non-restricted airfare. For instance, if there were only a $100 difference between the price of a restricted fare and that of a non-restricted fare, the safer option would be to buy the unrestricted fully refundable ticket. If the threshold is great enough to warrant further analysis, say around $300, then the restrictions that apply should be examined and compared to the likelihood of change or cancellation. For instance, if the traveler has a stable schedule and is going to a conference that has been scheduled for weeks, and the difference between the price of the non-contract government fare and the restricted ticket, this may be an excellent purchase for the government.

In another scenario, the same person is traveling to meet with someone who has a dynamic schedule. In this case the traveler’s schedule is still stable, but the person with whom the traveler is meeting has an unpredictable schedule. Because the risk for cancellation or change may be greatly increased, applicable restrictions on the airfare must be closely examined. If the difference

between the ticket prices is $300 and the meeting might be rescheduled, and the fee to make changes to the ticket is $100 then it may still be a significant $200 savings to the government. On the other hand, if there is a no refund policy for cancellations or changes, then the risk outweighs the potential savings, and the traveler should choose the higher unrestricted commercial airfare.

Finally, the fees associated with changing or cancelling a restricted flight can be reduced by booking and purchasing the ticket only a few days prior to departure. The closer the traveler is to departure, the less likely they are to cancel or make changes. Realize that the risk of a traveler making a change or cancellation will never be totally eliminated, but the point is to reduce the risk enough to effectively utilize excursion fares.

d. Monitoring and Reporting Restricted Airfare through Passenger Name Records

In order to gauge the success of the program, there must be an effective monitoring system in place. Passenger Name Records (PNRs) can help accomplish this task. A PNR is a unique identifier for a person's travel. Every time a traveler takes a trip, a PNR is generated. The PNR resides in the commercial Travel Office's Global Distribution system. In NPS' case, PNRs are maintained in SATO's SABRE global distribution system. Each PNR is a unique record that corresponds to a specific travel document number and a new one is created for the traveler with each subsequent travel. The PNR is written in a specific format and tells the global distribution system what flights the traveler wishes to reserve. The PNR looks more like code rather than discernable language except for

the comments between the traveler and the Commercial Travel Office. The PNR is also a historical record for reservations and flights for the entire trip. Some of the information contained in the PNR is the travelers name, address, and contact information to include email and phone numbers. In addition, the PNR also contains hotel, commercial auto, and flight reservation information. Supplemental information on airline reservations, such as airline ticket prices, is listed as well as departure and destination information. The airline even has the ability to inform the Global Distribution System whether or not the traveler has traveled on his or her ticket. This is done by the airline inserting a code known as a "ticket lift" into the traveler's PNR [5].

Because the PNR record contains all of this pertinent information, it can be used to show statistics or metrics on travel patterns, ticket usage, dollar value etc. The Passenger Name Record would be an invaluable tool to effectively monitor a program that allows travelers to travel on restricted airfare. From the information contained in a PNR, DoD could find out how many tickets purchased were restricted fares, the dollar amounts of those tickets, and how much money was saved by comparing to the price of the of an unrestricted fare. They could also discern what percentage of airline tickets were unused or cancelled.

SATO already uses a monitoring process similar to the one proposed above and is required to submit a weekly list of unused airline tickets to the airlines for refund. This reporting requirement is a result of the same GAO audit on unused airfare. SATO searches for unused tickets

by using an electronic ad hoc report called “Refund Program.” The Refund Program searches the Passenger Name Records in the Global Distribution System and looks for flights that have not been traveled on. Remember that airlines will put a code in the GDS called a “ticket lift” that indicates when a traveler has traveled on a ticket. So the refund program looks for PNRs without ticket lifts and generates a queue of records for SATO to submit to the airlines for refund [5].

The reporting system used in the new restricted airfare process would generate a list of records that could be viewed and submitted as an electronic report. The data captured from the monitoring program should be consolidated and organized into a meaningful report and forwarded to the CNO’s office for review.

e. Reporting Results to the CNO for Evaluation

In the beginning of the pilot program, reports should be sent to the CNO’s office to evaluate the program’s success on a monthly basis. These reports would detail how much money was saved or lost by using excursion fares, list how many excursion fares were used, and who used them. It is also important to outline how many penalty fees were incurred while using the excursion fares. The data should be gathered for one year and examined to see if using the excursion fares is beneficial. The CNO could use this data to decide if the results warranted further analysis by continuing with the program for another year or if the program should be terminated. The statistics could also give an accurate record of how many times a traveler changes a flight or cancels a trip.

V. CONCLUSION

A. SUMMARY

To review, this thesis opened by illustrating how important research and thesis travel are to NPS's primary mission of educating Military Officers. Next, a brief history of the evolution of travel systems at NPS was presented. Then a chapter was dedicated to solely to DTS describing its architecture, operations and processes. Following the Chapter on DTS was a section outlining current DoD travel cost saving programs. Finally the author presented a chapter on ideas for creating a program for effectively using restricted airfare to supplement the savings generated by the City Pair Program.

The primary research question for this thesis was: Can NPS effectively utilize restricted airfare to reduce transportation costs associated with thesis and research travel? The answer is yes. If NPS follows the steps of gaining authorization from the CNO to develop and validate a process for using excursion fares and places control measures in place to monitor the success of the program, then using restricted airfare should be a successful program for lowering the cost of airfare for NPS.

Secondary research questions were: Once NPS develops and uses a proven process for using excursion fares; can excursion fares be used effectively throughout DoD using DTS? The answer to this question is yes. If NPS develops a successful process for using DTS as outlined in Chapter Four of this thesis, then the CNO's Office would have real data to support a recommendation for the introduction of a DoD wide restricted airfare program.

In what ways can DTS be improved to help further reduce the transportation costs associated with DoD travel? As mentioned in Chapter Three of this thesis, DTS has eliminated legacy travel systems and their maintenance costs. DTS has also reduced the time it takes to process travel authorizations and vouchers and has reduced the time it takes to reimburse travelers. There are also other ideas for utilizing DTS for reducing travel related costs that are suggested in the Future Recommendations for Research section of this chapter.

How can DTS be modified to make the travel administration and travelers jobs more convenient? DTS can still be improved to ease the jobs of the travel administration as well as improve travelers' quality of service. Some of the items listed in the Future Recommendations section of this Chapter suggest ways to accomplish this task.

In what ways has the implementation of DTS already saved DoD money? As outlined in Chapter Three of this thesis, DTS has: eliminated legacy travel systems and their maintenance costs, reduced time and paper to process travel claims, and shortened the timeline for liquidating Bank of America cardholder accounts.

B. FUTURE RECOMMENDATIONS FOR RESEARCH

1. Fiscal Year Crossover

Transitioning from one fiscal year to the next tends to be a hectic time for NPS travelers and travel administrators. The problem does not reside with DTS but with STARS and loading of new lines of accounting. This is evidenced, as STARS has been down during past fiscal year

crossovers during which time travelers cannot enter Travel Requests. DFAS doesn't release the next year's new lines of accounting on time and so there is a difficult time with travel that crosses a fiscal year. Because STARS is part of the DTS network and is an essential cog in the process, DoD or DFAS should develop a better process for loading of information to STARS in order to ease the Fiscal Year Cross Over.

2. The Flagging System

Before a traveler digitally signs and authorization or voucher with their CAC and PIN, they must go through a Pre Audit screen. The purpose of this Pre Audit screen is to flag any items that may be in conflict with Defense Travel Agency guidelines or policy. The pre Audit will identify any selected hotels over the allotted per diem rate. Per Diem rate is the lodging expense and meals and incidental expenses allowable for reimbursement to the traveler. These rates vary by location according to the average lodging for that area. DTS also flags things like default method of reimbursement being incorrect. This flagging system is a great idea that is underutilized. It should have more info associated with items that are flagged to help travelers and Authorizing officials. Some red flag messages are self-explanatory while others tend to be vague. Currently, travelers and Authorizing Officials alike are confused by the comments or justification they are supposed to provide. Often the traveler's frustrations are revealed through cynical comments in the flag justification text box and provide no useful information to the Authorizing Official. As a fix, when an item is flagged, it should reference the instruction or policy and

recommend a course of action or have a list of drop down options that would satisfy as the justification. Referencing the policy for each red flag will alleviate the frustration for both the traveler and the Authorizing Official.

3. Receipts

According to the DoD Financial Management Regulations (FMR) Volume 2, hard copy receipts and supporting documentation are supposed to be maintained in the Authorizing Official's office for a period of six years and three months. DoD FMR also states that this requirement can be satisfied if the receipts are scanned and maintained electronically. Because viewing receipts in the voucher is mandatory for the Authorizing Official, the process should be less complicated. DTS has the capability of scanning receipts or faxing them into the travel document as supporting documentation, but there is no guidance which mandates that travelers scan their receipts into DTS. The system should automatically generate a red flag every time there are expenses but no receipts scanned to the voucher. Because it is not mandatory that travelers scan their receipts into DTS, the Authorizing Officials Office is still required to keep the hard copy receipts on file for a period of six years and three months for IRS auditing purposes [12]. This is a lengthy time period and increases the risk of the AO not being in compliance with IRS requirements and DoD regulations. This problem can be fixed by requiring travelers to scan their receipts into DTS and having DTS generate an audit flag when receipts are not scanned.

4. Airline Receipts

Airline receipts are also required to be kept for six years three months as prescribed by the DoD FMR Volume 2. Currently, in order to attach the e-ticket receipt to a voucher, the traveler must go back into their itinerary, print the receipt, maintain it until they create a voucher, and then scan or fax it into the voucher. These receipts should automatically be imported into the receipts section of the travel voucher when it is created. Most airline tickets used in the travel system are electronic. When the ticket is purchased, an e-ticket receipt is transferred from the GDS to the traveler's itinerary. A copy of the traveler's e-ticket receipt should also be transferred to the authorization as a holding spot until the traveler files a voucher. When the traveler creates a voucher from the authorization, the e-ticket receipt should automatically populate in the voucher. This would eliminate wasted paper and reduce the time to complete a voucher.

5. Trip Purpose

There should be a more detailed drop down menu for trip purpose. Site visit is the most commonly used trip purpose. This default trip purpose selection is most often used because travelers are confused as to the meaning of certain trips. DTS could allow the traveler to select from five options. The option selected could give another dropdown menu with five or so more selections to make the purpose more detailed. This information could then be consolidated to analyze current travel requirements and predict new ones.

6. Training

Many frustrations with DTS result from a lack of understanding the system or travel policy. Initial training and refresher training need to be mandatory for smooth operation of the system. A majority of the problems with NPS travel are created by human error due to lack of familiarity with the capabilities of the system. Northrop Grumman Tier 3 help desk could create an IT data collection tool that would highlight troubled areas. They could then make system architecture changes to prevent these errors from recurring or they could provide recommendations for DTS Program Management Office to train on.

7. Joint Terminology and Policy

DTS is unnecessarily complex because it tries to accommodate every branch of service's policy. In doing so, it makes the system harder to administer, maintain, and understand. Currently, different branches of service call travel by different names. For example the army calls temporary travel TDY or Temporary Duty. The Navy calls it TAD or Temporary Additional Duty. Language is not the only item that causes confusion. There are policy issues that need to be aligned as well. The Air Force is allowed to use their government purchase card for Permanent Change of Station (PCS) travel, while other armed forces are not. To be truly "Joint" in nature, Department of Defense must decide on a common language and policy guidance for all branches of armed services and civilians. DTS must use this language and enforce the common policy. If all branches used the same policy and language, DTS would be less confusing to the traveler.

8. Use DTS to Suggest More City Pairs

DTS can be utilized to help improve the City Pair Program. DTS schedules air reservations by searching on origin and destination cities or Airports. This data can be used to recommend certain city pairs for GSA City Pair Program. NPS faculty, staff and students mainly fly out of three airports: Monterey Airport (MRY), San Jose (SJC), and San Francisco (SFO). Because these airports are located relatively close to one another, the flights from all three airports could be consolidated into one originating City Pair Location from San Jose (SJC). Because San Jose is no more than one hour away from the other two airports, it is logistically feasible for all DoD installations in the San Francisco/Monterey Bay area to travel from San Jose. The flights originating from MRY SJC and SFO airports to common destinations could then be negotiated for San Jose (SJC) combining all flights from three airports into one origin city allowing for better negotiation of City Pair Fairs.

9. Better Unused Airline Ticket Reporting Tool

Rather than have SATO manually generate a report for Unused Airline Tickets, DTS could search completed travel Passenger Name Records for flights without ticket lift codes. These records could automatically be forwarded to the Airlines for Refund. This would free additional time for the SATO Office staff. Additional reports could show which unused tickets had been submitted for refund but not credited back to the U.S. Treasury.

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